

Listing of the Claims:

Claim 1 (Currently Amended): A device for the reduction of power of electrical

components comprising:

a chip as the electrical component;

means for measuring the temperature of the chip; and

means for regulating an operating voltage of the chip based on the measured temperature of the chip wherein when said means for measuring the temperature of the chip senses a chip temperature that is less than a predetermined threshold temperature value which represents an idle state of the chip that is a low power state of the chip, said means for regulating the operating voltage of the chip changes the operating voltage of the chip to a minimum allowed voltage value at its idle state ~~wherein the idle state is a low power state of the chip~~, wherein the threshold temperature representing the idle state of the chip is determined based on component speed characteristics of the chip at the threshold temperature and wherein the minimum allowed voltage and the threshold temperature maintain the component speed characteristics of the chip, while providing significant reduction in power consumption of the chip.

Claim 2 (Original): The device according to claim 1, wherein the chip is a silicon-based component.

Claim 3 (Original): The device according to claim 2, wherein the chip is one of a Si component, a Si-germanium component, a gallium arsenide component or other semiconductor component.

Claim 4 (Original): The device according to claim 1, wherein said means for measuring the temperature of the chip comprises a thermocouple.

Claim 5 (Original): The device according to claim 1, wherein said means for measuring the temperature of the chip comprises a thermal diode.

Claim 6 (Original): The device according to claim 1, wherein said means for regulating the operating voltage of the chip comprises an external voltage regulator.

Claim 7 (Original): The device according to claim 1, wherein said means for regulating the operating voltage of the chip comprises an internal linear/switched voltage regulator.

Claim 8 (Canceled).

Claim 9 (Previously Presented): The device according to claim 1, wherein said means for regulating the operating voltage comprises firmware.

Claim 10 (Currently Amended): A device for the reduction of power of electrical components comprising:

a chip as the electrical component;

a thermometer that outputs the temperature of said chip;

a voltage regulator coupled to the output of the thermometer and to the chip

wherein said voltage regulator reduces the operating voltage of the chip when the output

of the thermometer is less than a threshold temperature representing an idle state of the chip that is a low power state of the chip and said voltage regulator reduces the operating voltage of the electrical component to a minimum allowed voltage value in its idle state when the sensed temperature is below the threshold value ~~and wherein the idle state is a low power state~~, wherein the threshold temperature representing the idle state of the chip is determined based on component speed characteristics of the chip at the threshold temperature and wherein the minimum allowed voltage and the threshold temperature maintain the component speed characteristics of the chip, while providing significant reduction in power consumption of the chip.

Claim 11 (Original): The device according to claim 10, wherein the chip comprises one of silicon, silicon germanium, gallium arsenide, or other semiconductor material.

Claim 12 (Original): The device according to claim 10, wherein said thermometer comprises a thermal diode.

Claim 13 (Original): The device according to claim 10, wherein said voltage regulator comprises an external voltage regulator.

Claim 14 (Original): The device according to claim 10, wherein said voltage regulator comprises an internal linear/switched voltage regulator.

Claim 15 (Canceled).

Claim 16 (Original): The device according to claim 10, wherein said voltage regulator regulates the operating voltage of the chip using firmware.

Claim 17 (Original): The device according to claim 10, further comprising a card on which at least two chips are disposed where the thermometer measures the temperature of each chip and the voltage regulator reduces the operating voltage of each respective chip when the measured temperature of the respective chip is less than a threshold temperature.

Claim 18 (Original): The device according to claim 10, further comprising a card on which at least two chips are disposed where the thermometer comprises an individual thermometer to measure the temperature of each chip and the voltage regulator comprises individual chip specific voltage regulators that are respectively associated with one of the at least two chips so that the operating voltage of the at least two chips is reduced when the output of the respective, individual thermometer is less than a threshold temperature.

Claim 19 (Original): The device according to claim 10, further comprising a card on which at least two chips are disposed where the thermometer measures the temperature of each chip and the voltage regulator comprises individual chip specific voltage regulators that are respectively associated with one of the at least two chips so that the operating voltage of the at least two chips is reduced when the output of the respective, individual thermometer is less than a threshold temperature.

Claim 20 (Original): The device according to claim 19, wherein a first voltage regulator reduces the operating voltage of at least two chips and a second voltage regulator reduces the operating voltage of another chip.

Claim 21 (Currently Amended): A method for the reduction of power of electrical components, comprising:

measuring the temperature of a chip or electrical component while the chip is ON;
and

reducing an operating voltage delivered to the chip to a minimum allowed voltage when the measured temperature of the chip drops below a predefined threshold temperature representing an idle state of the chip that is a low power state of the chip wherein the predefined threshold temperature is selected to be a chip temperature below which the chip is presumed to be in the idle state ~~and wherein the idle state is a low power state~~, wherein the threshold temperature representing the idle state of the chip is determined based on component speed characteristics of the chip at the threshold temperature and wherein the minimum allowed voltage and the threshold temperature maintain the component speed characteristics of the chip, while providing significant reduction in power consumption of the chip.

Claim 22 (Canceled).

Claim 23 (Previously Presented): The method according to claim 21, wherein the reduced operating voltage is changed to a nominal operating voltage, when the chip returns to a normal operating mode.

Claim 24 (Currently Amended): A machine-readable storage medium that provides instructions, which when executed by a computing platform, cause said computing platform to perform operations comprising a method for the reduction of power of electrical components of:

measuring the temperature of a chip while the electrical chip is ON; and
reducing an operating voltage delivered to the chip to a minimum allowed voltage power when the measured temperature of the chip drops below a predefined threshold temperature representing an idle state of the chip ~~wherein the idle state~~ that is a low power state of the chip, wherein the threshold temperature representing the idle state of the chip is determined based on component speed characteristics of the chip at the threshold temperature and wherein the minimum allowed voltage and the threshold temperature maintain the component speed characteristics of the chip, while providing significant reduction in power consumption of the chip.

Claim 25 (Previously Presented): The machine-readable storage medium of claim 24, wherein the predefined threshold temperature is selected to be a chip temperature below which the chip is presumed to be in an idle state.

Claim 26 (Previously Presented): The machine-readable storage medium according to claim 24, wherein the reduced operating voltage is changed to a nominal operating voltage, when the chip returns to a normal operating mode.

Claims 27-29 (Canceled).